



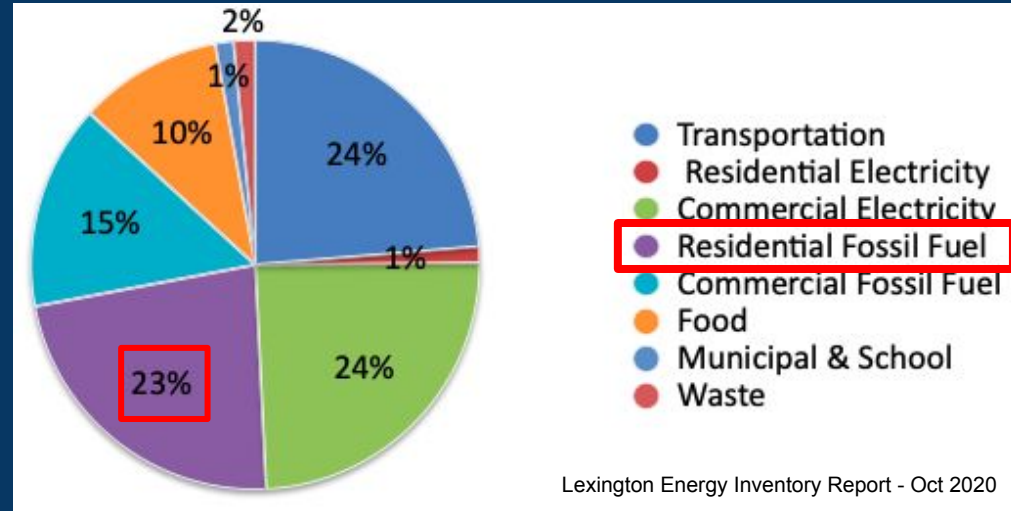
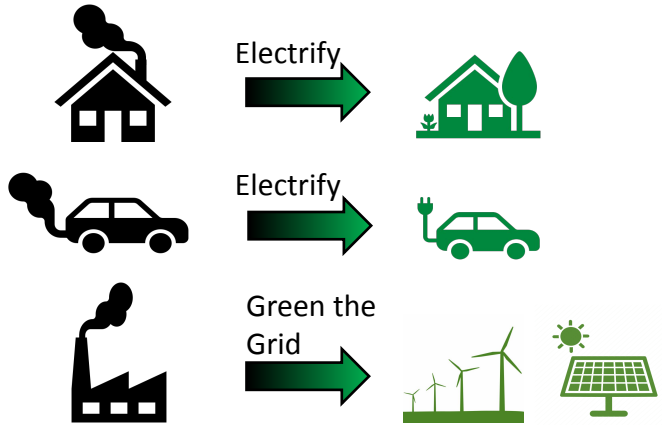
Article 40: Amend Zoning Bylaw - Sustainable Residential Incentives (Citizen Petition)



Practical, Cost-Effective, Responsible

Reducing Lexington CO₂e Emissions in Buildings

Steps to 100% clean energy:



Recommended by Sustainable Lexington Committee

- Lower emissions and more environmentally responsible
- Healthier, more economic, more valuable & more resilient building for homeowners
- Predictability for developers with practical standards; reasonable construction cost differential; avoids costly retrofitting
- Takes effect January 2023

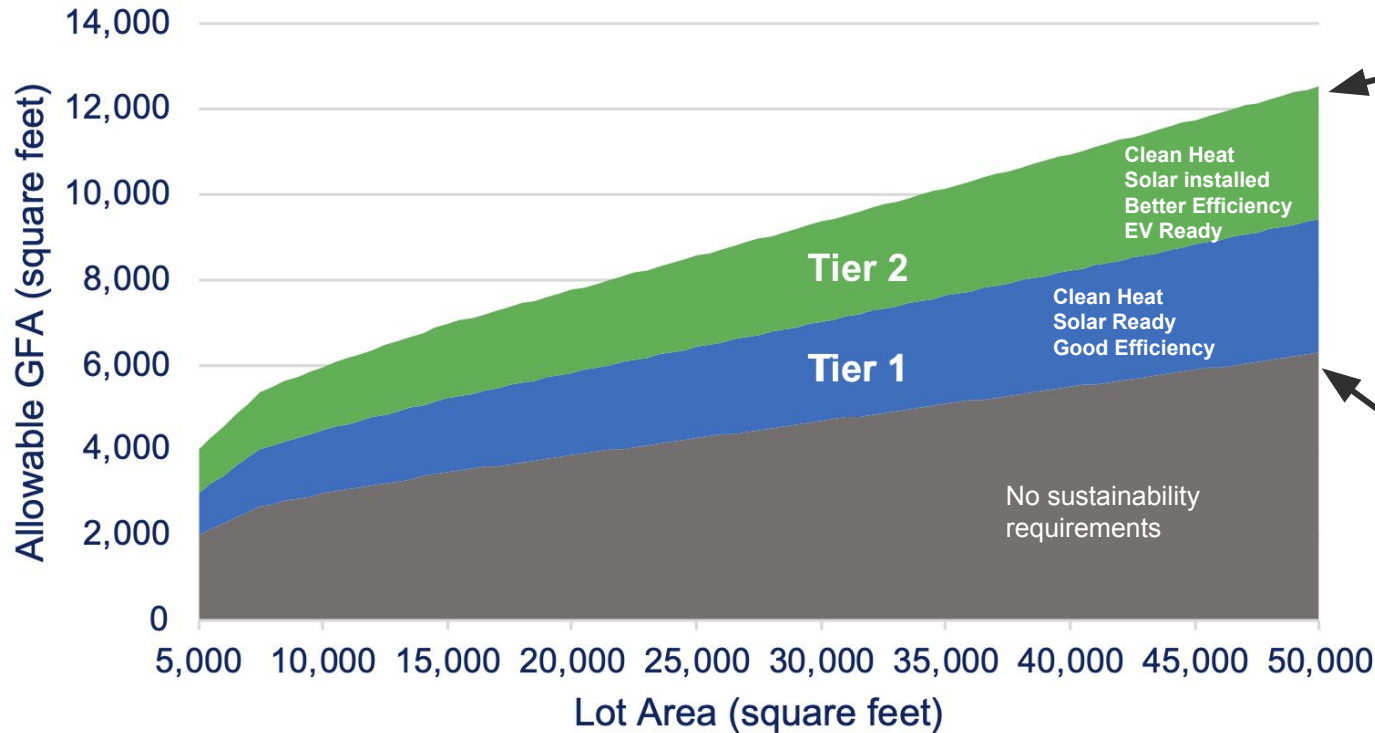


Encourage new residential construction consistent with the Town's emission reduction and sustainability goals by:

- Defining sustainable performance standards:
 1. Eliminate indoor fossil-fuel combustion (Clean Heat)
 2. Improve building efficiency via **existing** Home Energy Rating System (HERS) rating
 3. Provide Electric Vehicle (EV) charging
 4. Be solar-ready/provide solar energy generation
- Reducing allowable gross floor area (GFA) for **new residential construction** that doesn't meet these standards, and;
- Providing tiered GFA incentives, up to current allowable limits, for **new residential construction** that does meet the defined higher performance standards.

This proposal does not affect existing homes or modifications to existing homes.

Proposed Sustainable GFA Tiers



Current Max Allowable GFA

- **Unchanged** for Existing buildings and their additions (Table 4.4.2.2)
- Proposed max for Tier 2 new construction

Proposed “Base” Max Allowable GFA

New construction with no sustainability requirements (Table 4.4.2.1)

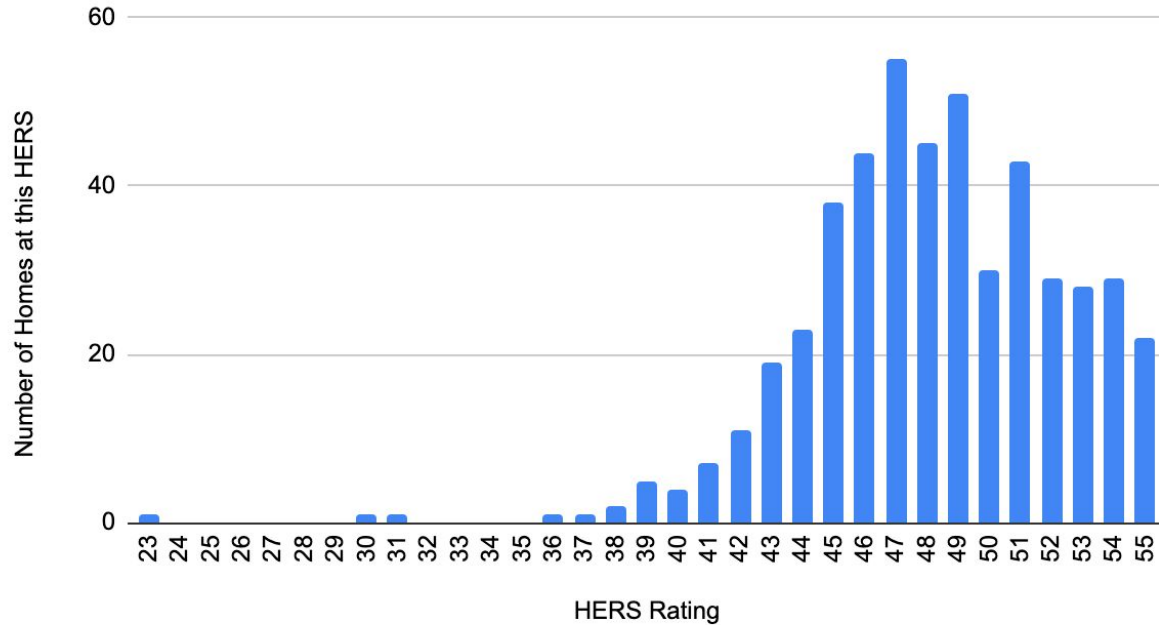
Tier 1 - 50% more allowable GFA than new Max (1.5x)

Clean Heat	<p>No on-site fossil fuel combustion systems or appliances for:</p> <ul style="list-style-type: none">a. Heating, cooling, and ventilationb. Domestic hot waterc. Indoor cookingd. Laundrye. Indoor fireplacesf. Indoor or outdoor lighting
Good Efficiency	<p>A HERS rating ≤ 47 (not including solar) OR Passive House compliance</p>
Solar ready	<ul style="list-style-type: none">a. Effective solar ready area free from obstructions, necessary to support a system sized 1.4W+ per sf GFA and adequate electric service/panel, andb. Adequate space for inverter and related equipment and installed conduits.

Tier 2 - 100% more allowable GFA than new Max (2x)

Clean Heat (same as Tier 1)	No on-site fossil fuel combustion systems or appliances for: <ul style="list-style-type: none">a. Heating, cooling, and ventilationb. Domestic hot waterc. Indoor cookingd. Laundrye. Indoor fireplacesf. Indoor or outdoor lighting
Better Efficiency	A HERS rating <= 42 (not including solar) OR Passive House compliance
Solar Installed	Install and interconnect rooftop solar system sized 1.4W+ per sf GFA. May be reduced if shaded by existing trees, hills, structures.
EV Ready	Install at least one Level 2 EV charger per home, plus wiring to each additional indoor parking spot.

HERS ratings for new home construction in Lexington (2014-2021)



- Almost ½ of new construction in the last 8 years has already met Tier 1 HERS requirement (≤ 47).
- High efficiency heat pumps can lower HERS score by ~5 points = >80% of recent new construction meeting Tier 1 and >40% meeting Tier 2.

\$15K in new incentives for clean heat and better envelope!



Coordination with Mass Save® 1-4 unit Incentives

- New Mass Save incentives for 2022-2024
 - \$15k For All-Electric homes below HERS 45 and \$25k below HERS 35 / Passivehouse

Source:

<https://www.mass.gov/doc/building-energy-code-straw-proposal-updated-stretch-code-specialized-opt-in-code-feb-2022/download>

State analysis of builder cost savings:



Results of Residential Analysis

What does HERS 42 mean for builders?

- **Electric-heated homes:** heat pumps significantly improve efficiency; better air sealing and ventilation is all that is needed to reach HERS 42-45
 - Incremental costs savings range from \$11,938 to \$28,597 after incentives
- **Gas-heated homes:** HERS 42 requires some combination of triple-glazed windows, improved insulation, better air sealing and heat recovery ventilation
 - Incremental costs for these improvements range from cost savings of \$570 to an increase of \$7,900 after incentives

Source:

<https://www.mass.gov/doc/building-energy-code-straw-proposal-updated-stretch-code-specialized-opt-in-code-feb-2022/download>

Other estimated costs for Tier 2:

- Level 2 EV charger (<\$1,000)
- Solar installation (~\$15-30K)

Tier 2 Solar Installation



House size (GFA)	Solar system size	Number of panels	Roof coverage
5,000 sf	7 kW	19	370 sf
10,000 sf	14 kW	38	740 sf

- As solar technology improves, fewer panels and smaller area will be needed to generate the same amount of energy.
- Solar energy systems of this size would approximately cover the high-efficiency heating electricity usage.

Benefits for homeowners

- Tier 2: \$3700 - \$6000+ annual savings (excluding EV charging):
 - 50% of new homes in Lexington are built with propane heat, installing clean heat instead will save ~\$2000 annually
 - \$200-\$400 annual savings potential for heat pump hot water
 - \$1500-\$4000 reduction on annual electricity costs with solar electricity generation
- Lower maintenance, more resilient and higher value home
- Safer and healthier home: better indoor air quality due to absence of fossil fuel combustion indoors



Outreach and Review

- ✓ 30 residential developers (first in February 2021 with ATM 2021-Article 29)
- ✓ Multiple HVAC installers, HERS raters, real estate agents
- ✓ Town Counsel
- ✓ Building Commissioner and staff
- ✓ Members of Planning Board and Planning staff
- Members of Select Board
- Other organizations/groups to be contacted:
 - Housing Partnership Board
 - LexHAB
 - Board of Health
 - Commission on Disability

In summary, Article 40 encourages better buildings for the future

- Adopts industry best practices in many local constructions: **Lower emissions, healthier, more economic & resilient**
- Promotes responsible development, aims for Net Zero Emissions goals and a 100% renewable future
- Predictability for developers with practical, measurable standards; reasonable construction cost differential; avoids costly retrofitting
- Not preempted by state building code, takes effect January 2023

Hope you will join us to vote YES on Article 40!

Up to 100 new homes are constructed in Lexington each year:
waiting for a true net zero state building code is *not* the solution.

The time to shape a better Lexington is NOW.

